GEOGRAPHIC NEWS BULLETINS

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© *Lynwood M. Chace*

TOADS CAN COPY THEIR COUSINS AND PLAY LEAPFROG

The little tree-toad, of the *Hyla* branch of the family, is used to high perches. A suction disk on each toe helps him climb to sing his shrill spring song from a tree. Most tree-toads change color with atmospheric changes, such as humidity. The big warty toad with fierce beaked nose is gentler than he looks. He raises no objection to the use of his head as a toad's stool. It is not unusual for toads in captivity to pile up on one another's heads (Bulletin No. 5).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Will the Dardanelles, Back Door to Europe, Open or Close?

TURKEY, owner of the Dardanelles, has been wooed like a popular young heiress. Foreign statesmen have besought a pledge that control of these strategic straits would be used by Turkey to help their respective countries. One of the latest of the many rumors is that Allied fleets may be permitted to go through the Dardanelles into the Black Sea, where it would be possible to blockade the oil shipments from the U.S.S.R. to Germany.

The Strait of the Dardanelles is the southern exit of one of the most strategic waterways of the Eastern Hemisphere, a 172-mile-long bottleneck cutting through western Turkey and joining two of Europe's busiest seas, the Black and the Mediterranean. Control of the Dardanelles has spelled victory or defeat since the days of its fame as the Hellespont, when Xerxes crossed it on his bridge of boats and Leander swam it to see his legendary sweetheart.

Geography of Straits Defeated World War Allies at Gallipoli

One of the most discussed campaigns of the World War was the attempt of the Allies to dislodge Turkish forces from the hilly Gallipoli Peninsula on the northwest side of the Dardanelles. Seeking to open the Straits for communication with Romania and Russia, the British, French, Australian, and Indian divisions laid siege to the strategic waterway in April, 1915, for a nine-month stalemate. They withdrew by night the following January, leaving the Turks still firmly entrenched.

A varied parade of world shipping passes here through a natural "toll gate" so important that history has recorded continual warfare for its control since Agamemnon, 1,200 years before Christ, led his Greeks against the walls of Troy near the Straits' southern shore. The waterway separates Europe from Asia by double doors with a vestibule in between. The southern door is the Strait of the Dardanelles, 35 miles of winding waterway narrowing from four miles to 7/10 of a mile across. The vestibule is the Sea of Marmara, about the size of Lake Champlain. The northern door is the 17-mile Strait of the Bosporus, shorter and narrower than its southern counterpart, diminishing from 1½ miles to a half-mile.

The two Straits give this water corridor a total of 52 miles—more than the length of the Panama Canal—where the shores are not over four miles apart. A fort anywhere along the 52 miles of narrows would have a greater patrol value than Gibraltar, which must overlook a nine-mile reach of water.

Two Countries Reach World Shipping Only Through Straits

Only through these straits can world shipping reach the oil and lumber ports of Romania, the grain ports of the Russian Ukraine, the oil ports of the Caucasus, and the trade of Istanbul (Constantinople). Of the four Black Sea coast countries—Turkey, Bulgaria, Romania, and the U.S.S.R.—two have no ports except those reached through the Dardanelles.

The international importance of Dardanelles shipping is indicated by ships making port in Chanak, first harbor encountered at the southern end of the Straits. In a sample year, only five per cent of the tonnage was carried by Turkish vessels. Two dozen other countries, including the United States, sent their flags into Turkey's port, but 68 per cent of the commerce was carried by Great Britain, Italy, Greece, Norway, and Soviet Russia.

The stopper was pulled out of the Straits bottleneck after the World War by neutralizing its waters, much as the Panama and the Suez Canals are proclaimed

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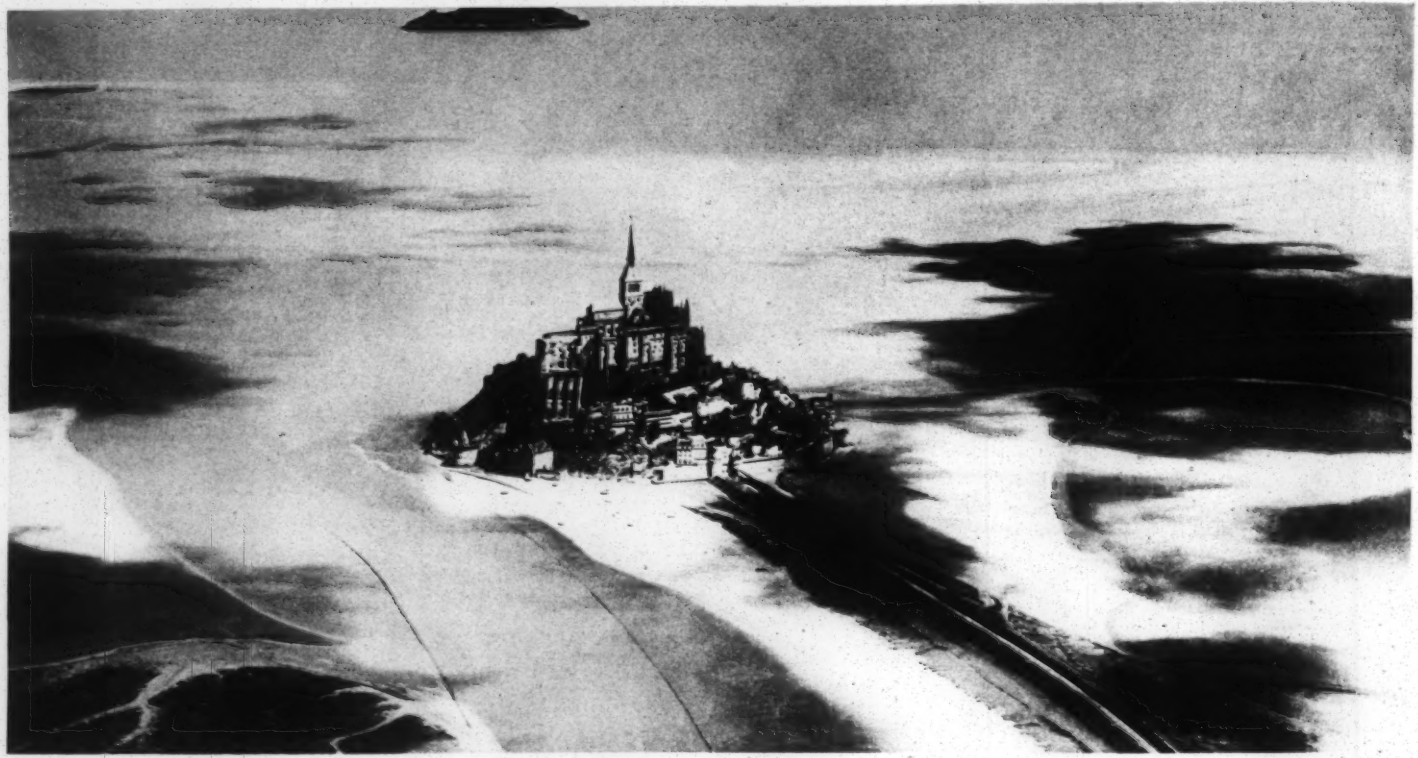

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MISTS OF HISTORY AND MARSHES SOFTEN THE GOTHIC OUTLINES OF MEDIEVAL MONT ST. MICHEL

Pre-Christian Frenchmen looked upon this island and its northern neighbor, Tombelaine (top), as the sea islands to which a mythical ship carried the souls of the dead. The Benedictine monastery was started in 966. A single well of fresh water has sustained the garrisoned church-fortress and growing town through several sieges. A causeway for road and street-car line was built to the island in 1879 (lower right). The Couesnon River, outlined between dikes, flows into the Bay of St. Michel (left center) through salt marshes that have been reclaimed from the waters of the Bay; now on their sandy pastures graze the sheep which produce a prized mutton of distinctive flavor (Bulletin No. 3).

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Saudi Arabia in the Grip of Modern Progress

OF ALL the tales of Arabia, none perhaps is more romantic than that of the King of Saudi Arabia, and of his fabulous country's modern Arabian Nights adventures in oil production. These are recalled by the visit home of the first United States Minister to Saudi Arabia. Appointment of the Minister in 1939 followed closely upon an American company's striking oil in the country in 1938.

The King, popularly called Ibn Saud, rules a young desert nation one-fourth as large as the United States, larger than Mexico and in practically the same latitude. The kingdom between the Red Sea and the Persian Gulf covers 80 per cent of the arid Arabian Peninsula, includes a desert waste second in extent only to the great Sahara, and supports a population of five million. It is bordered by a fringe of smaller, semi-independent states on the north and south.

Home Town Boy Makes Good in International Way

Now in his sixtieth year, the Arabian king was a poor exile in his early twenties, when his dreams of a native government began to come true; with an "army" of 40 men, he captured his ancestral city of Riyadh, in the inland realm of Nejd. In 1913 he ejected the Turks, and began to push his dominion outward in every direction. Eleven years later he captured Mecca, in the Hejaz region along the Red Sea coast. In 1927 he took the title of King of the Hejaz and of Nejd, a dual kingdom which in 1932 became Saudi Arabia. Now he rules from coast to coast over some 800,000 square miles, nine times the size of Great Britain.

Ibn Saud's conquest of the Red Sea kingdom of the Hejaz brought under his dominion both Medina and Mecca, Moslem shrines sacred to one-seventh of the world's population. Mecca, the world's greatest travel resort, is the capital for the constitutional government of this well-developed western section, whose large cities thrive on the stream of pilgrims visiting the holy shrines (illustration, next page). The double kingdom, however, has two capitals. From his native city of Riyadh, 500 miles east in the desert, Ibn Saud himself administers a tribal government for the highland nomads and scattered oases of Nejd, where the word of the Koran is the law of the land.

Nejd is the lofty plateau—high, dry, and hot—in the center of Saudi Arabia's rough rectangle. Bands of desert border the plateau, rocky in the north, sandy in the south. A land of no perennial rivers and little rain, the kingdom must find its moisture through wells and springs from water beneath the desert crust.

The Land of Thirst Exports Dates to U. S.

Perhaps less than one-fifth of the country is cultivated by the patient *fellahin,* who shelter their citrus trees and pomegranates behind windbreaks of tamarisk trees, or carry water to patches of eggplants, onions, melons, and carrots. The Bedouins drive their flocks of sheep, herds of camels and horses through the land in the wake of rain, traveling by night to escape the sun's heat.

The United States receives more than a million pounds of pitted dates annually from Saudi Arabia's oasis palms, many of them watered by leather buckets hoisted from wells by camel power. Lambskin, kid, and goatskin that once roamed desert sands in search of green pastures finally are gathered into the fold of American department stores. Saudi Arabia ranks halfway down the list of 34 countries which fill American coffee cups. Small quantities of ambergris imported to the United States are reminders that the traditional perfumes of Araby owe much of

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neutral. This neutral status was established by treaty in 1920. In July, 1936, however, Turkey received official sanction on plans to refortify the Straits from the "interested States" of the original agreement—Bulgaria, France, Greece, Italy, Japan, Romania, Soviet Russia, Turkey, United Kingdom, and Yugoslavia.

Except during those sixteen demilitarized years, Turkey has ruled the Dardanelles since 1453, when Istanbul (Constantinople) the Unconquerable was conquered by the latest Asiatic invaders of Europe. Since the World War, 97 per cent of Turkey has been confined to Asia, but the European three per cent gives that country both sides of the Straits, and power to control one of the strategic crossroads of world history. For the Straits guard the great north-south water route from the Black Sea to the Mediterranean, a lure to adventurers since Jason braved it; and there too passes the great land route from Europe to Asia.

Note: References to, and photographs of, the Dardanelles and Bosporus Straits are found in "Modern Odyssey in Classic Lands," *National Geographic Magazine*, March, 1940; "Transformation of Turkey," January, 1939; "The Road of the Crusaders," December, 1933; "Summer Holidays on the Bosporus," October, 1929; "Seeing 3,000 Years of History in Four Hours," December, 1928; and "Skirting the Shores of Sunrise," December, 1926.

See also in the GEOGRAPHIC NEWS BULLETINS: "Courted Turkey Holds a Key," October 23, 1939; and "Turkey's Straits Problem Needs Straightening Out Again," May 4, 1936.

A detailed map showing the Straits appears on page 654 of the December, 1933, *Geographic*.

See also the Map of the Classical Lands of the Mediterranean, first issued as a supplement to the March, 1940, *Magazine*. Separate copies are available at 50c (paper) and 75c (linen).

Bulletin No. 1, April 22, 1940.

Photograph by Maynard Owen Williams

THE STRAITS HAVE PROVIDED A PEACEFUL SETTING FOR VIOLENT DRAMA

From this quiet pastoral spot, it is possible to see across the Bosporus, the northern one of Turkey's straits. Battles for Istanbul have been waged along these shores. Most of their history's pages have been stormy ones, since the Persian King Darius watched his army cross from the Asiatic to the European shores of the Straits, for one of Asia's periodic invasions of Europe.

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Mont St. Michel: Historic Bit of France in the English Channel

"THE Mount in Peril of the Sea" was what the Romans called Mont St. Michel. The French, who count the Mount and its pile of medieval architecture among the greatest treasures of Normandy, now fear it may be imperiled by the hazards of war. On the list of historical monuments which recently have been placed under government protection appears a venerable building on Mont St. Michel, the Annex to the Hôtel Poulard. The Gothic church, or abbey, on the summit of the Mount was made a national monument in 1874.

Hôtel Poulard, although immeasurably overshadowed in historic interest by the abbey, shines with a little glory all its own. For this is the site on which Madame Poulard used to conjure up her famous omelets, in a capacious frying pan over an open fire. Although Madame Poulard has passed from the scene, omelets have remained as one of the specialties the Mount offers to its visitors.

Tide Rushes Over Sand at Phenomenal Speed

The historic islet, viewed from the coast of Normandy, rises like a phantom out of the sea (illustration, inside cover). Once it was connected with the mainland by a narrow tongue of land, but the fear expressed in its ancient name—Mount in Peril of the Sea—was realized during the 7th century when the waters of the English Channel submerged all but the tongue's rocky tip. The link to land was restored by a causeway begun in 1879.

Down through the centuries Mont St. Michel has been the site of a Druid sanctuary, a Roman shrine to Jove, a Christian chapel in 708, and in 966 a monastery which grew until its buildings covered a large part of the island. Today, the monastery's massive buttresses and graceful arched cloisters, its crypts and wine cellars carved in rock, and its beautiful abbey are studied by modern architects.

Visitors reach Mont St. Michel by boat, or over the causeway by automobile and street car. Automobiles are parked at low tide on the gray sand surrounding the island. The usual program of the visitor calls for a stroll around the beach and then a climb to a higher spot where one can observe the antics of the tide. The tide goes out here for more than seven miles. It sweeps in so rapidly that its speed is described as "faster than a galloping horse."

Wall-Encircled Isle Was Model for British Twin

Massive medieval walls encircle Mont St. Michel. All visitors for centuries have entered through a single narrow gate. So sturdy is the island's fortified wall that it turned back British besiegers in 1434.

From the gateway, the narrow flagstone Grande Rue, the only street, winds upward between clusters of houses clinging to granite ledges. In the summer when Mont St. Michel is most popular, this street, with its souvenir shops, restaurants, and cafés, rings with the animated chatter of local venders and men and women from a score of countries (illustration, next page). Natives of the island smile at visitors moving across the dike for, while fishing and pottery-making bring them some revenue, most of the 250 inhabitants are engaged in catering to tourists.

Grande Rue zigzags up the rock, by hairpin curves and flights of stone steps, approximately 250 feet to the abbey. Built on top of the rocky pyramid, this medieval structure has a spire that soars to 498 feet above the sea, almost double the original height of the island. St. Michael, the Archangel, to whom the founder dedicated the lofty building, was the patron saint of high places.

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their fame to whales that venture into warm seas around the Arabian Peninsula.

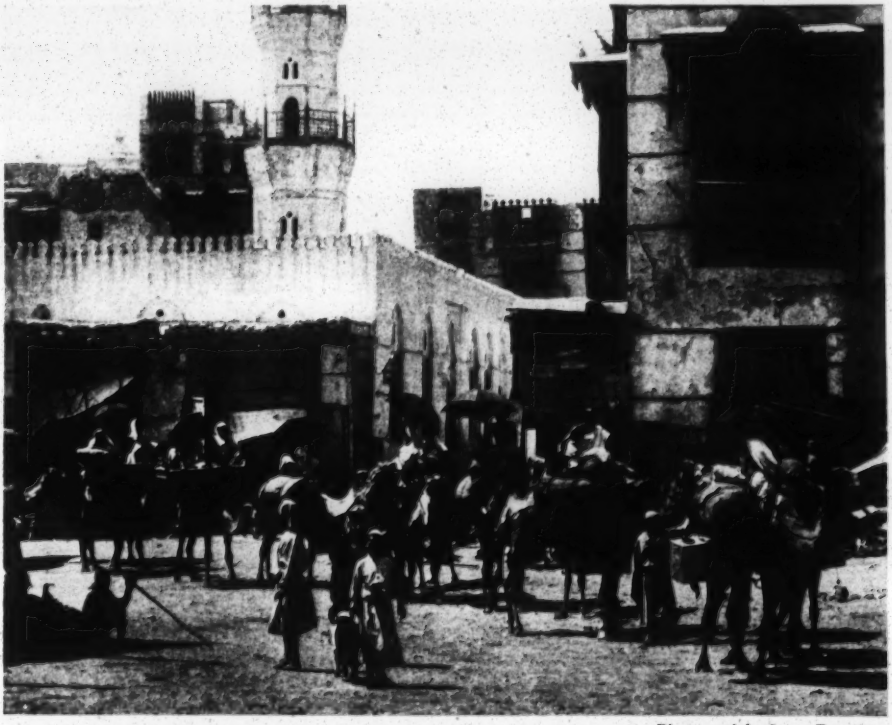
Oil is opening a new era for Saudi Arabia, where lack of water has kept untraveled an unknown region surpassed in mystery only by the unexplored areas of Antarctica. Much of Arabia has been thrown open to American prospectors by the petroleum concession awarded to the Standard Oil Company of California and its associates. One province alone has already placed the country among the leading oil producers of the Near East. In the native land of Mohammed and the traditional realm of the Queen of Sheba, a 40-mile pipe line now carries coastward the oil from a new kind of well that shares the esteem always accorded wells in that parched country. Terminus of the pipe line is Ras Tanura, the country's first deep-water port on the Persian Gulf, once notorious for piracy and slave-smuggling.

The Saudi Arabia concession gave United States oil interests a second stake in the petroleum-rich region where Asia, Europe, and Africa meet. They have added the Saudi Arabia territory to their holdings in the Bahrein Islands, 20 miles off the Arabian coast, historic center for pearl-fishing before the discovery of oil eight years ago. Rights to Near East oil fields are held by the British in Iran, the French in Syria, the British in Kuwait, and in Iraq by the British and Dutch jointly.

Note: Additional material about Saudi Arabia is contained in "Pearl Fishing in the Red Sea," and "Pilgrim's Progress to Mecca" (duotone insert), *National Geographic Magazine*, November, 1937; and "An Unbeliever Joins the Hadj," June, 1934.

See also "A Railroad That Religion Built—The Hejaz Railway," GEOGRAPHIC NEWS BULLETINS, November 11, 1935.

Bulletin No. 2, April 22, 1940.



Photograph by Owen Tweedy

IN SOME ARABIAN CITIES, HALF THE PEOPLE ARE TRANSIENTS

Mecca and Medina make Saudi Arabia the place which one-seventh of the world's inhabitants (the Moslem fraction) must try to visit before death. Jidda, leading city on the country's Red Sea coast, is port of entry for the numerous pilgrims approaching the Moslem shrines by boat. During the pilgrimage season its population, like that of Mecca and Medina, is sometimes doubled. The travelers in the street are starting on their 45-mile journey across the desert to Mecca.

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Susquehanna Valley Learns To Handle Floods

THE broad, shallow Susquehanna River—the "great island river" of the Iroquois—piled up destructive flood crests through its Pennsylvania valley early this month, but the bad news was not as bad as it might have been. As rising floods, fed from thawing snows and heavy rains, swept down the river, inhabitants commented appreciatively that protective dikes and other flood control measures had helped stave off disasters such as those accompanying the flood of March, 1936. The flood precautions, improved after the experience of the 1936 disaster, ordinarily accommodate the increased flow of spring high water with ease.

"Pumpkin Flood" Made History

That Susquehanna floods are neither new nor rare is shown by the story of the "pumpkin flood" of 1786, recalled along the upper river. Pumpkins from inundated farms sprinkled the surface of the swollen stream during an autumn freshet in that year.

The river which modern measures are protecting is the leading river system of Pennsylvania, as far as drainage area is concerned. It has much of the State's industry along its banks and the State capital, Harrisburg, situated beside its lower reaches. The Susquehanna River zigzags generally southward, in a huge, loose Z, from southern New York State, across Pennsylvania and the northeastern corner of Maryland, to empty into the upper end of Chesapeake Bay, 444 miles from its source.

James Fenimore Cooper, whose fondness for the river shows up in his "Leatherstocking Tales," said that his novel, *The Pioneer,* was a story of the sources of the Susquehanna.

Power Dams Block Lower River

The main north branch of the Susquehanna rises in Lake Otsego, New York, flows past Binghamton, New York, cuts across the Appalachian ranges in a deeply entrenched valley in northeastern Pennsylvania, and joins the west branch at Sunbury.

The west branch rises in the Alleghenies, and then follows a circuitous course east and southeast to its union with the north branch. The lower river is blocked by several dams, the largest being that at Conowingo. By means of canals, traffic is diverted around some of the lower river's rapids. The Susquehanna Trail, following the river between Williamsport and Harrisburg, is noted for its scenery.

The Susquehanna drains a large basin almost as wide as it is long. The lowlands are largely agricultural, while forests cover most of the mountainous areas. Busy road and rail routes follow the main stream, its branches, and tributaries.

Massacres by British Troops and Indian Allies

Important industries are represented in the many large cities and towns on its banks. Binghamton, New York, manufactures photographic equipment, washing machines, and business machines. At Johnson City is one of the world's largest shoe factories. Pittston, Wilkes-Barre, and Nanticoke are in the heart of Pennsylvania's anthracite (hard coal) mining region. Sunbury, fourth among the great transportation centers of Pennsylvania, has large silk mills and foundries. Harrisburg, the capital, has big steel mills, meat-packing plants, and railroad yards. This is the home port of the River Coal Fleet, which annually pumps up about 150,000

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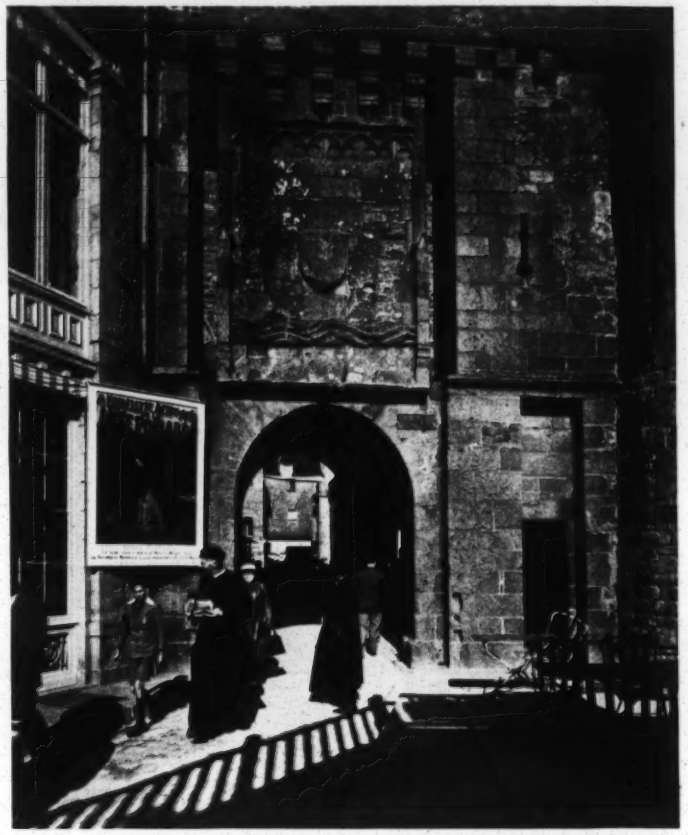
The tiny town at the base of the monastery was founded by refugees from the French mainland, who fled when attacking Norsemen came to make Normandy their realm. In the 12th century the encircling wall was begun, and the island became a fortress. Political prisoners were confined in Mont St. Michel's dungeons between 1790 and 1863.

Mont St. Michel sent ships to join the fleet of William the Conqueror when he brought England under his Norman sway. In reward, the Norman monastery was awarded a miniature British Mont St. Michel on the coast of Cornwall, St. Michaels Mount, which resembled the French model in architecture and management. The Cornish abbot paid tribute to the Norman abbey across the Channel.

Subsequently, both English and French kings have held their courts at Mont St. Michel. Henry I of England there resisted the attack of his two brothers.

Note: For other views of Mont St. Michel, see "Mont St. Michel, A Medieval Masterpiece" (duotone insert), also "Normandy—Choice of the Vikings," in the *National Geographic Magazine*, May, 1936; and "Flashes of Color Throughout France" (color insert), November, 1924.

Bulletin No. 3, April 22, 1940.



Photograph by F. S. Lincoln

BUILDERS MADE PROVISION FOR FOOD AND FIGHTING

Porte du Roi, the gateway on Mont St. Michel's Grande Rue through which visitors pass so freely, was formerly barred by a portcullis and further protected by a drawbridge over a moat. The signboard beside it directs the hungry to "L'Omelette Renommée de la Mère Poulard" in the equally renowned hotel. Sightseers visit the spacious refectory in the monastery, and see the large, primitive dumbwaiter operated by a windlass to bring food from lower levels into the refectory.

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Geo-Graphic Brevities

WHERE DOES THE WEST BEGIN?

"OUT where the smile dwells a little longer—That's where the West begins." So say the song writers, but what does West mean to geographers? The "course of empire" since the dawn of history has steadily been pushing the West westward, until at last, from the American point of view at least, anything further west would be literally East. The ocean jump west from the western United States coast lands the traveler in the Orient, named from the Latin *oriens* ("rising") as the land of the rising sun. In ancient times, Europe was the West to the early civilizations of Africa and Asia. Europe's name came from the Hebrew word *ereb*, which means "to the west" or "the land of the setting sun"; a Latin word of the same meaning supplied the modern term, Occident. When the Arabs, moving westward across North Africa, reached what is now Morocco on the Atlantic Ocean, they called the country with confident finality *Moghreb-el-Aksa*, "the farthest west."

* * * * *

THE LADY ON HORSEBACK

If you think that riding sidesaddle is a ladylike custom introduced in the interests of modesty, prepare to find yourself mistaken. Stories of the custom's origin suggest that sidesaddles were first seen in Central Europe during the 14th century, the invention of the deformed "Ugly Duchess," Margaret Multasch of the Tyrol.

The earliest saddles, complete with back, arms, and footboard, were more like traveling armchairs, or the elaborate seats used in the East for camel and elephant back. The invention of the simpler modern sidesaddle has been attributed to Italy. France took up the style, which spread finally to feminine riders over the world.

Women's riding costumes remained generally trouserless until well into the 19th century, in spite of the custom of many to sit astride their mounts. Such clothes were often as ornate as ballroom gowns. Brilliant colors in silk and velvet, pleats, ruffles, long flowing skirts, and bird-of-paradise hats were worn by well-to-do women riders. On their "gently ambling horses," the leisurely ladies of yesteryear sometimes even carried parasols and fans instead of the riding crops favored today. Yet, feminine as these early styles appear in modern eyes, gentlemen of the day "viewed with alarm" what they called the "masculinity" of women's riding garments. The 17th-century English diarist Pepys protested that "Only for a long petticoat dragging under their men's coats, nobody would take them for women . . . a sight that did not please me."

* * * * *

FASHION FINDS THE FROG

Frogs have long been used for food, served up in the nutritious and palatable dish of frog legs. Toads and frogs—both constituting branches of the same tailless amphibian family (illustration, cover)—perform a valuable service to mankind by devouring insect pests that might otherwise destroy crops. Modern experiments with the glands of certain toads have produced adrenalin, proving that ancient Chinese doctors were less ignorant than they seemed when brewing evil-tasting medicines from toadskins. From some species, the South American Indians get poison to tip their murderous arrows, or the coloring matter used in dyeing parrots' feath-

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tons of coal the size of rice and peas from the bed of the Susquehanna (illustration, below).

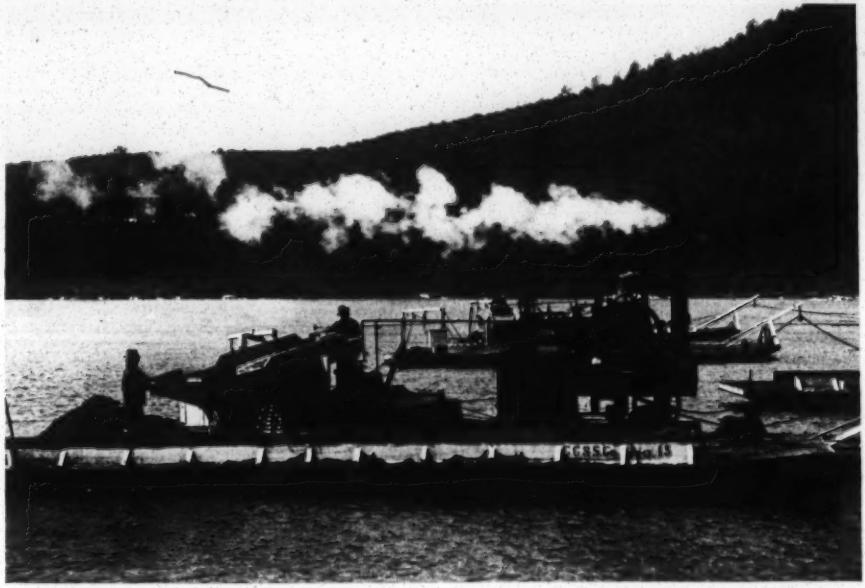
Along the shores of the river occurred many bloody encounters between Indians and early settlers. Clashes between factions of Connecticut and Pennsylvania white residents went down in history as the "Pennamite and Yankee" war. The Wyoming Valley Massacre on July 3, 1778, along the Susquehanna above Wilkes-Barre, took place when Tory residents, British troops, and allied Indian bands ranged up and down the valley, killing, pillaging, and burning. Most of the valley was temporarily cleared of American whites.

"Stolen Valleys" in the Paths of "Pirate Rivers"

The wandering Susquehanna, before the last Ice Age, traveled more directly to the sea, over what is now the lower valley of the Delaware. Geologists have searched among the folds of the Appalachian mountains for the barrier that turned the Susquehanna southwest from that former course, and pushed it from Pittston to Sunbury before letting it flow seaward again. The same upsetting Ice Age, which turned the Delaware to steal the Susquehanna's old bed, also cut off the latter's head in New York State. Geologists believe that the five Finger Lakes are old Susquehanna sources which glacial moraines dammed up; they filled into lakes, then overflowed to the north, before they could overcome the glacier-built obstacles to their former connection.

Note: For additional photographs and references to the Susquehanna, see "Penn's Land of Modern Miracles," *National Geographic Magazine*, July, 1935; and "Pirate Rivers and Their Prizes," July, 1926. The area drained by the Susquehanna and its tributaries may be located on the map of Pennsylvania, pages 4 and 5 of the July, 1935, *Geographic*.

Bulletin No. 4, April 22, 1940.



Photograph by Edwin L. Wisherd

THE SUSQUEHANNA RIVER IS A COAL MINER IN SECRET

By slow erosion through the hills of Pennsylvania's great anthracite region northeast of Harrisburg, the Susquehanna does considerable "mining" on its own initiative, picking up fragments of coal and carrying them downstream. The fragments are no larger than seeds or peas, but the river gathers them in such quantities that it is profitable to "mine" the river. The barge pumps up water and sediment from the river bottom, then separates the coal from water and mud much as gold is extracted by "panning."

ers to increase the sales value of these jungle birds. Most recent use is that reported from style centers in the United States, as frogskin shoes were introduced to fashionable women wearers. Skins for the shoe leather were obtained from giant frogs found in Brazil. In the Orient, frog leather is already familiar, made up into purses and belts.

Note: See "Our Friend the Frog," in the *National Geographic Magazine* for May, 1932.

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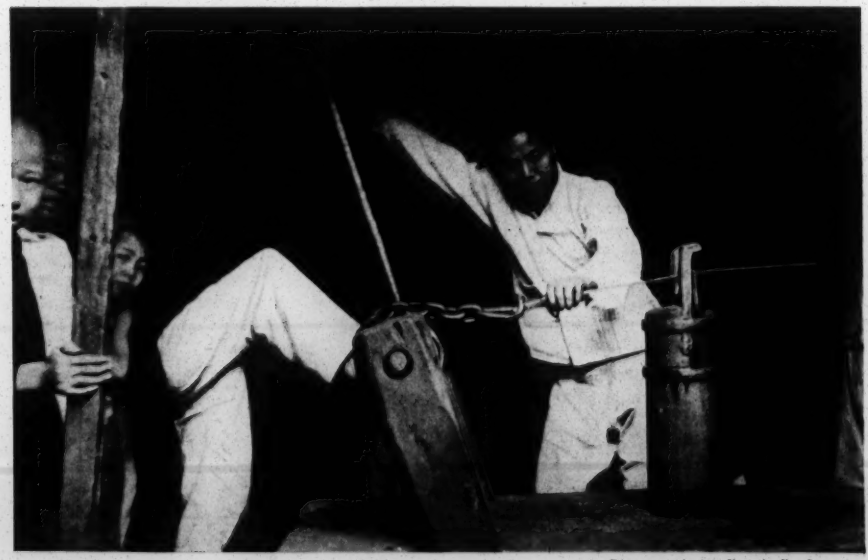
THE WIRY WORLD OF THE 20TH CENTURY

With work under way to repair the damage of winter storms and spring floods, the importance of wire in the world of today was recognized anew. There are in use some 168,573,000 miles of telephone wire alone. In addition there are other millions of miles of wire for industrial use, in electrical equipment and transmission. Telegraph systems employ even more wire mileage, although telegraphy is also done simultaneously over some telephone lines. Besides carrying its modern freight of words and electric current, wire still serves such older purposes as fences and fastening. Today wire is made by drawing a rod of ductile metal, cold, through a series of lubricated holes, which are tapered in size; the metal is reduced in size as the holes diminish, until the required fineness of wire is attained (illustration, below). Before this process of wire-drawing was invented, wire was hammered out, a procedure which would be fantastically inadequate for present requirements, either in quantity or in uniformity of size. Radio sets demand wire finer than human hair, unattainable in any quantity by hand-hammering; but wire has been drawn 1-3000th of an inch fine, only a fraction of a hair's diameter.

Nuremberg, commercial center of Bavaria in southern Germany, was for a time credited with having invented wire-drawing in the 14th century. But mention of the process as a contemporary practice has been discovered in a manuscript dating from the 9th century, found in Lucca, Italy.



Photograph by Frank B. Lenz

ALL HANDS AT WORK, AND FEET TOO, TO START WIRE ON ITS WAY TO THE JEWELERS

The delicate silver wire of filigree jewelry, for which Chinese craftsmen are famous, may be produced in this clumsy workshop. The silver rod, not yet wire-thin, is pulled through a hole that slims it; the pulling is done by winding a heavy chain around a windlass. Then the hole is made smaller, and the wire pulled through again for a smaller dimension.